

1 1. An intelligent electronic device connected to interact with a power system, the
2 device comprising:

3 a power system interface circuit for communicating with the power system;
4 a processor coupled to the power system interface circuit; and
5 memory storing software instructions performed by the processor for receiving
6 electronic mail from a remote system through a communication link and for automatically
7 transmitting electronic mail to the remote system through the communication link.

1 2. The device of claim 1 in which the electronic mail includes information
2 relating to operation of one or more of: the power system and the device.

1 3. The device of claim 1 in which the memory stores software instructions
2 performed by the processor for receiving input from the power system interface circuit
3 relating to operation of the power system.

1 4. The device of claim 1 in which the memory stores software instructions
2 performed by the processor for sending output to the power system interface circuit to
3 operate a fault protection device when input received from the power system interface circuit
4 indicates a fault event in the power system.

1 5. The device of claim 1 further comprising a second memory storing temporary
2 data to be used by the processor for transmitting and receiving electronic mail to and from
3 the remote system.

1 6. The device of claim 5 in which the second memory stores temporary data
2 relating to the power system or to the intelligent electronic device, the temporary data
3 including one or more of: status reports, measurement data, event records, status change data,
4 and documentation files.

1 7. The device of claim 1 in which the memory stores software instructions
2 performed by the processor for validating the remote system before accepting electronic mail
3 from the remote system.

1 8. The device of claim 1 in which the memory stores software instructions
2 performed by the processor for interpreting electronic mail that includes one or more of:
3 settings, configuration, operating code, requests for information, and one or more commands.

1 9. The device of claim 1 in which the memory stores software instructions
2 performed by the processor for receiving within the electronic mail a request for information
3 relating to operation of one or more of the power system and the device.

1 10. The device of claim 9 in which the memory stores software instructions
2 performed by the processor for interpreting a request for information that includes one or
3 more of: a request for current configuration of the power system or the device, a request for a
4 data file of the measurements for the last time period, a request for a snapshot of the last
5 operation of the power system or the device, and a request to change a single operating
6 parameter of the power system or the device.

1 11. The device of claim 1 in which the memory stores software instructions
2 performed by the processor for receiving within the electronic mail a command.

1 12. The device of claim 11 in which the memory stores software instructions
2 performed by the processor (i) for validating the command, (ii) for interpreting the command,
3 (iii) for sending confirmation to the remote system of the validated command, (iv) for
4 receiving assurance of the command from the remote system, and (v) for executing the
5 command if the assurance is received.

1 13. The device of claim 1 in which the memory stores software instructions
2 performed by the processor for encoding at least a portion of the electronic mail as ASCII
3 text and for interpreting at least a portion of the electronic mail as ASCII text.

1 14. The device of claim 1 in which the memory stores software instructions
2 performed by the processor for encoding at least a portion of the electronic mail as HTML-
3 formatted text and for interpreting at least a portion of the electronic mail as HTML-
4 formatted text.

1 15. The device of claim 1 in which the memory stores software instructions
2 performed by the processor for encoding at least a portion of the electronic mail as XML-

3 formatted text and for interpreting at least a portion of the electronic mail as XML-formatted
4 text.

1 16. The device of claim 1 in which the memory stores software instructions
2 performed by the processor (i) for encoding data in binary format, and (ii) for attaching the
3 encoded data to electronic mail that will be transmitted.

1 17. The device of claim 1 in which the memory stores software instructions
2 performed by the processor for interpreting data encoded in a binary format as an attachment
3 in a received electronic mail.

1 18. The device of claim 1 in which the memory stores software instructions
2 performed by the processor (i) for encoding data in MIME, (ii) for attaching the encoded data
3 to electronic mail that will be transmitted.

1 19. The device of claim 1 in which the memory stores software instructions
2 performed by the processor for interpreting data encoded in MIME as an attachment in a
3 received electronic mail.

1 20. The device of claim 1 in which the memory stores software instructions
2 performed by the processor for formatting one or more of: status changes, new data, alarms,
3 event records, oscillographic records, and documentation files within electronic mail that is
4 transmitted.

1 21. The device of claim 1 in which the memory stores software instructions
2 performed by the processor for transmitting electronic mail to the remote system including a
3 distribution list of remote users.

1 22. The device of claim 1 in which the remote system comprises one or more of a
2 computer, a cellular telephone, a personal digital assistant, a pager, and a television system.

1 23. The device of claim 1 in which the memory stores temporary data to be used
2 by the processor for transmitting and receiving electronic mail to and from the remote
3 system.

1 24. The device of claim 23 in which the memory stores temporary data relating to
2 the power system or to the device, the temporary data including one or more of status reports,
3 measurement data, event records, status change data, and documentation files.

1 25. The device of claim 1 in which the memory stores instructions performed by
2 the processor for receiving instant messages from a remote system through a communication
3 link and for automatically transmitting instant messages to the remote system through the
4 communication link.

1 26. An apparatus for interacting with a power system, the apparatus comprising:
2 an intelligent electronic device connected to the power system; and
3 a system remote from the intelligent electronic device and connected to the intelligent
4 electronic device through a communication link;

5 in which the intelligent electronic device comprises:
6 a power system interface circuit in communication with the power system,
7 a processor, and
8 memory storing software instructions performed by the processor for
9 receiving input from the remote system through the communication link and for transmitting
10 electronic mail to the remote system through the communication link.

1 27. The apparatus of claim 26 in which the electronic mail includes information
2 relating to operation of one or more of the power system and the intelligent electronic device.

1 28. The apparatus of claim 26 in which the memory stores software instructions
2 performed by the processor for receiving input from the power system interface circuit
3 relating to operation of the power system.

1 29. The apparatus of claim 26 in which the memory stores software instructions
2 performed by the processor for sending output to the power system interface circuit to
3 operate a fault protection device when input received from the power system interface circuit
4 indicates a fault event in the power system.

1 30. The apparatus of claim 26 in which the intelligent electronic device comprises
2 a second memory storing temporary data to be used by the processor for transmitting and
3 receiving electronic mail to and from the remote system.

1 31. The apparatus of claim 30 in which the second memory stores temporary data
2 relating to the power system or to the intelligent electronic device, the temporary data
3 including one or more of: status reports, measurement data, event records, status change data,
4 and documentation files.

1 32. The apparatus of claim 26 in which the memory stores software instructions
2 performed by the processor for validating the remote system before accepting electronic mail
3 from the remote system.

1 33. The apparatus of claim 26 in which the memory stores software instructions
2 performed by the processor for interpreting electronic mail that includes settings,
3 configuration, operating code, requests for information, or one or more commands.

1 34. The apparatus of claim 26 in which the memory stores software instructions
2 performed by the processor for receiving within the electronic mail a request for information
3 relating to operation of the power system.

1 35. The apparatus of claim 34 in which the memory stores software instructions
2 performed by the processor for interpreting a request for information that includes one or
3 more of: a request for current configuration of the power system or the device, a request for a
4 data file of the measurements for the last time period, a request for a snapshot of the last
5 operation of the power system or the device, and a request to change a single operating
6 parameter of the power system or the device.

1 36. The apparatus of claim 26 in which the memory stores software instructions
2 performed by the processor for receiving within the electronic mail a command.

1 37. The apparatus of claim 36 in which the memory stores software instructions
2 performed by the processor (i) for validating the command, (ii) for interpreting the command,
3 (iii) for sending confirmation to the remote system of the validated command, (iv) for
4 receiving assurance of the command from the remote system, and (v) for executing the
5 command if the assurance is received.

1 38. The apparatus of claim 26 in which the memory stores software instructions
2 performed by the processor for encoding at least a portion of the electronic mail as ASCII
3 text and for interpreting at least a portion of the electronic mail as ASCII text.

1 39. The apparatus of claim 26 in which the memory stores software instructions
2 performed by the processor for encoding at least a portion of the electronic mail as HTML-
3 formatted text and for interpreting at least a portion of the electronic mail as HTML-
4 formatted text.

1 40. The apparatus of claim 26 in which the memory stores software instructions
2 performed by the processor for encoding at least a portion of the electronic mail as XML-
3 formatted text and for interpreting at least a portion of the electronic mail as XML-formatted
4 text.

1 41. The apparatus of claim 26 in which the memory stores software instructions
2 performed by the processor (i) for encoding data in binary format, and (ii) for attaching the
3 encoded data to electronic mail that will be transmitted.

1 42. The apparatus of claim 26 in which the memory stores software instructions
2 performed by the processor for interpreting data encoded in a binary format as an attachment
3 in a received electronic mail.

1 43. The apparatus of claim 26 in which the memory stores software instructions
2 performed by the processor (i) for encoding data in MIME, (ii) for attaching the encoded data
3 to electronic mail that will be transmitted.

1 44. The apparatus of claim 26 in which the memory stores software instructions
2 performed by the processor for interpreting data encoded in MIME as an attachment in a
3 received electronic mail.

1 45. The apparatus of claim 26 in which the memory stores software instructions
2 performed by the processor for formatting one or more of: status changes, new data, alarms,
3 event records, oscillographic records, and documentation files within electronic mail that is
4 transmitted.

1 46. The apparatus of claim 26 in which the memory stores software instructions
2 performed by the processor for transmitting electronic mail to the remote system including a
3 distribution list of remote users.

1 47. The apparatus of claim 26 in which the remote system comprises one or more
2 of a computer, a cellular telephone, a personal digital assistant, a pager, and a television
3 system.

1 48. An intelligent electronic device connected to interact with a power system, the
2 device comprising:

3 a power system interface circuit for communicating with the power system;
4 a processor coupled to the power system interface circuit; and
5 memory storing software instructions performed by the processor for receiving an
6 instant message from a remote system through a communication link and for automatically
7 transmitting an instant message to the remote system through the communication link.

1 49. An intelligent electronic device connected to interact with a power system, the
2 device comprising:

3 a power system interface circuit for communicating with the power system;
4 a processor coupled to the power system interface circuit; and
5 memory storing software instructions performed by the processor for receiving
6 electronic mail from a remote system through a communication link.

1 50. An intelligent electronic device connected to interact with a power system, the
2 device comprising:

3 a power system interface circuit for communicating with the power system;
4 a processor coupled to the power system interface circuit; and
5 memory storing software instructions performed by the processor for automatically
6 transmitting electronic mail to the remote system through a communication link.

1 51. A computer readable medium having embodied thereon a computer program
2 for processing by an intelligent electronic device, the computer program comprising:

3 a first code segment to receive input from a power system relating to operation of the
4 power system;

5 a second code segment to send output to the power system to operate a fault
6 protection device when input received from the power system indicates a fault event in the
7 power system; and
8 a third code segment to receive electronic mail from a remote system through a
9 communication link.

1 52. The computer readable medium of claim 51 in which the computer program
2 further comprises a fourth code segment to validate the remote system before accepting
3 electronic mail from the remote system.

1 53. A computer readable medium having embodied thereon a computer program
2 for processing by an intelligent electronic device, the computer program comprising:
3 a first code segment to receive input from a power system relating to operation of the
4 power system;
5 a second code segment to send output to the power system to operate a fault
6 protection device when input received from the power system indicates a fault event in the
7 power system; and
8 a third code segment to automatically transmit electronic mail to the remote system
9 through the communication link.